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occupying the whole lower surface of the leaf, ferruginous-brown; spores ovate or oblong-ovate, umbonate at the apex, .001-.0013 inch long; pedicel hyaline, short.

Living leaves of *Sophora sericea*, Pursh.

Mr. Brandegee remarks concerning this fungus that it is very common at Canon City, about one-half the *Sophora* plants being affected by it. The plants attacked by it become more erect in habit and do not blossom. The sori sometimes occur sparingly on the upper surface of the leaf also. The specific name is suggested by the hyaline membrane that at first covers them.

**PUCCINIA NIGRESCENS, Pk.**—Spots none; sori rather prominent, cauline, oblong, blackish-brown or black; spores smooth, elliptical or oblong, obtuse or bluntly pointed, slightly constricted at the septum, .0015-.0018 inch long, .0008-.001 broad; pedicel colorless, two to four times as long as the spore.

Stems and branches of *Salvia lunolata*, Willd.

No leaves of the host plant accompanied the specimens sent, so that I am not able to say whether the fungus ever attacks the leaves or not.

The two following species have been received from the sources given at the end of the descriptions:

**DIATRYPELLA FROSTII, Pk.**—Stroma verruciform, rather prominent, convex or hemispherical, scarcely one line broad, sometimes confluent, partly covered by the closely adhering fragments of the ruptured epidermis, black externally, greenish within, forming a white spot on the wood beneath; perithecia sub-globose, generally ten to fifteen; ostioli obscure; asci sub-cylindrical, scarcely pedicellate, polysporous; spores yellowish in the mass, cylindrical, curved, .00025-.00035 inch long.

Dead maple branches. Brattleborough, Vermont. *C. C. Frost.*

Externally this fungus resembles small forms of *Diatryella verruciformis*, from which it is easily separated by the greenish color of the stroma. *D. botulina*, which also has a greenish stroma, differs from this species in the larger size, different form and naked disk.

**SOROSPORIUM DESMODII, Pk.**—Spore balls irregular or sub-globose, compact, rough, .0012-.0016 inch in diameter, color in the mass reddish-brown inclining to cinnamon; spores sub-globose, rough, .0006-.0007 inch in diameter, four to ten in a group, not easily separating from each other.

Seeds of *Desmodium acuminatum*, DC. Closter, New Jersey. *C. F. Austin.* September.

I am not aware that any representative of this genus has before been detected in the United States. Nor is it surprising that this species has so long escaped notice, for the fungus is wholly concealed, being produced in the seeds while they are yet inclosed in the pod. For a time there is no external evidence of the presence of the fungus, but at length a slight discoloration of the part of the pod immediately over the affected seeds indicates that all is not right within.

The whole seed, except perhaps the thin external coat, appears to be transformed into the fungus spores. The color of these is similar to that of the spores of *S. Saponariae*, but the spore masses are smaller and less easily separated into their component spores. Every seed in a pod and nearly every pod on an affected plant, so far as shown by the specimens sent me, is attacked. From this it would appear that the fungus must be quite effective in preventing the increase of this *Desmodium* by the seed in localities where it abounds.

**MORE ABOUT LOBELIAS.**—In the April number (1877) of the GAZETTE I mentioned having found a white plant of *Lobelia syphilitica*. I now have to report not only a red flowered plant of the same species, (differing in no particular, except in color, from the common form,) but a remarkable plant which appears to be a hybrid between *L. syphi-*

*litica* and *L. cardinalis*. A careful comparison shows the following peculiarities: Leaves and calyx nearly as hairy as those of *L. syphilitica*; bracts intermediate; the flowers have the slender tube and the aspect of *L. cardinalis*, but broader at the mouth and with more conspicuous folds in the throat, nearly as large as in *L. syphilitica*. It has also the reflexed calyx sinuses of the latter species, but they are very short. The color is remarkable, and led to the discovery of the plant, being a deep reddish or crimson-purple; different from any plant I can now call to mind. It grew in the midst of a patch of *L. syphilitica* in low, moist woods; no plants of *L. cardinalis* nearer than two hundred yards, at which distance there were several. There were but two plants of the hybrid.—J. SCHNECK, *Mt. Carmel, Ill.*

I have received and examined a specimen of this interesting plant, and I have no doubt that it is rightly considered to be a hybrid between *Lobelia syphilitica* and *L. cardinalis*. I never saw the like of it before.—ASA GRAY.

**MISTLETOE PARASITIC ON ITSELF.**—The Mistletoe (*Phoradendron flavescens*) abounds in Florida, where it may be found on nearly every kind of tree. We know of one plant of it growing on a low *Prunus Chicasa*, only eight feet from the ground; but it attains its greatest development on the lofty branches of old oaks, where a single plant frequently attains the size of a hogshhead. Having a fine oak which had become overrun by this parasite to an extent which endangered the life of the tree, we recently had the mistletoe cut off. It would have required a hay-rack to carry it away at one load, for it equalled in amount the natural foliage of the tree. The fertile and sterile plants were about equal in number, size and color, but all were more *flavescens* than those growing on less burdened trees. We were not before aware that any plant ever grew on another of its own species, but here we found two instances of this phenomenon. In one case a staminate plant grew on a staminate, and in the other a pistillate on a staminate. In both cases the double parasitism was proved by the fact that the secondary plants sprung from internodes, and in the last the proof was rendered doubly strong by the diceious character of the plant.

It would be interesting to know how the mistletoe compares in northern and southern latitudes as to germination and maturing of fruit. In Florida both are about simultaneous, but in the Northern States it would seem that an interval of several months must intervene. If so, there must be a much greater waste of seed, and probably the seed finds secure lodgment and germinates mainly on rough-barked trees. The distribution of the mistletoe must be effected mainly through the agency of birds, and yet it seems almost impossible that so soft a berry can pass through the digestive system without losing its vitality. At any rate the special adaptation of the fruit is for ready adhesion to external objects. Even to planed boards it adheres with almost the tenacity of glue. In this latitude the berries of the mistletoe are too green at Christmas to be of interest for decoration except from association. Towards the close of winter the pulp becomes thin and gelatinous, and the germ begins to grow and turn green within its nourishing and translucent envelope. In this condition the berries are readily beaten off by the spring rains and winds on to other branches, when the germs, already highly developed, quickly pierce through the bark to the nourishing streams of sap flowing beneath.

It would seem that the mistletoe, being green throughout, was specially adapted for the elaboration of sap, and that it ought to assist the tree in this office, if for no other reason than to maintain the health of the latter. Such services are sometimes performed by animal parasites, but common observation goes to show that vegetable parasites take only and give nothing. That this is true of the mistletoe is indicated by the fact that the portion of the branch beyond its insertion frequently dies, when the remaining portion ceases to grow. In such cases the mistletoe will continue to grow until its diame.